FIG. 1

OTHER NODE

10 NETWORK INTERCONNECTION APPARATUS

ATM CIRCUIT CONTROL MEANS

17

S2

11

ROUTING INTERCONNECTION MANAGING MEANS

DETERMINATION

S5

S4

S6

CALL CONNECTION CONTROL MEANS

14

15

S7

S8

QoS SETTING MEANS

13

S3

INTERWORK QoS GUARANTEEING MEANS

S13

ROUTE SELECTING MEANS

19

S10

S11

S12

16

LAN CIRCUIT CONTROL UNIT

S1

STATISCAL INFORAMATION MANAGING MEANS

12

ADJUSTMENT

S9

QoS INFORMATION NOTIFYING MEANS

18

S14

20 MAINTENANCE TERMINAL UNIT

A1

LAN UNIT (INFORMATION TERMINAL UNIT)

FIG. 2

A1 —— LAN UNIT

E1

NODE A

NODE B

NODE C

NODE D

NODE E

1a LAN

2 ATM NETWORK

1b LAN

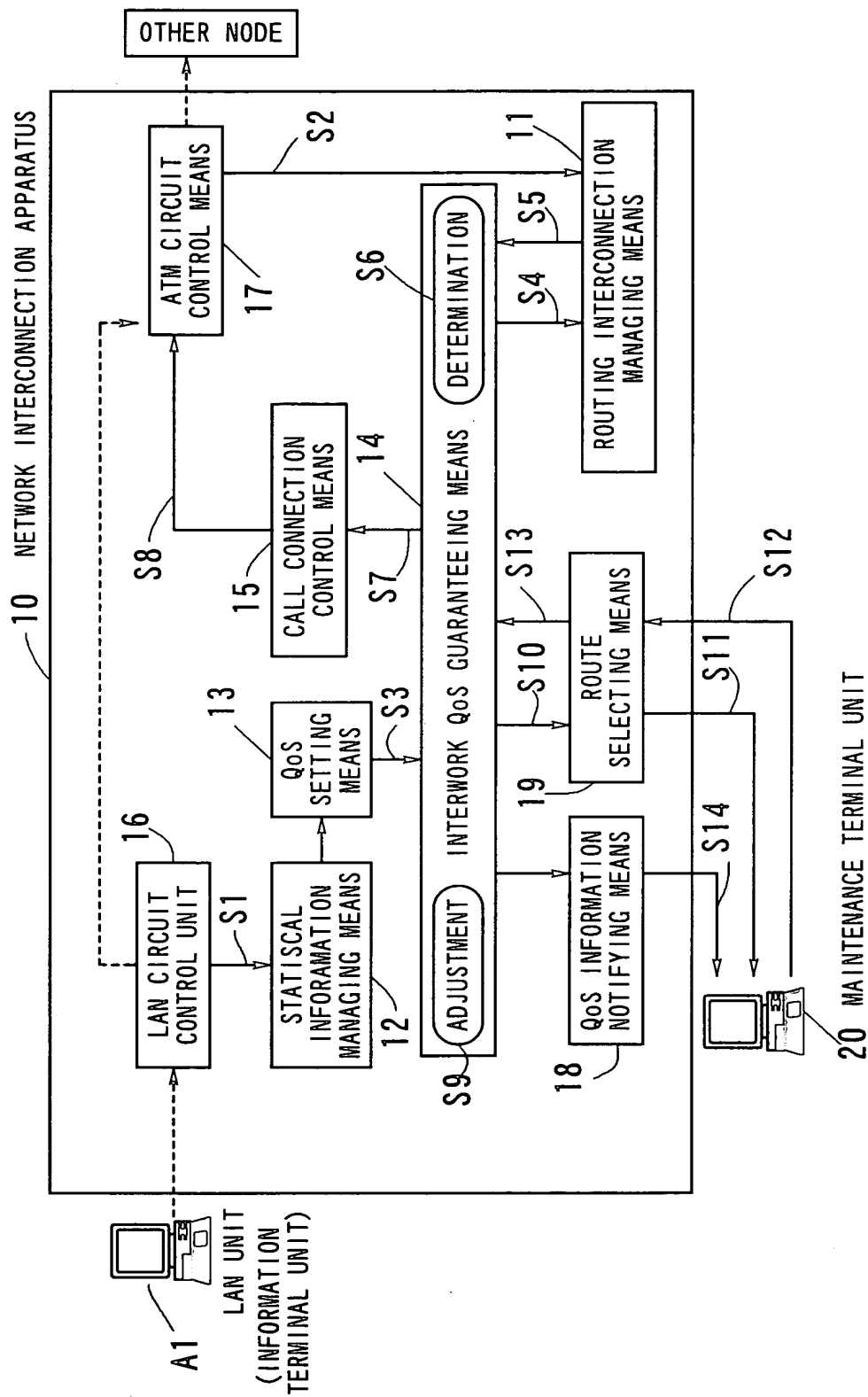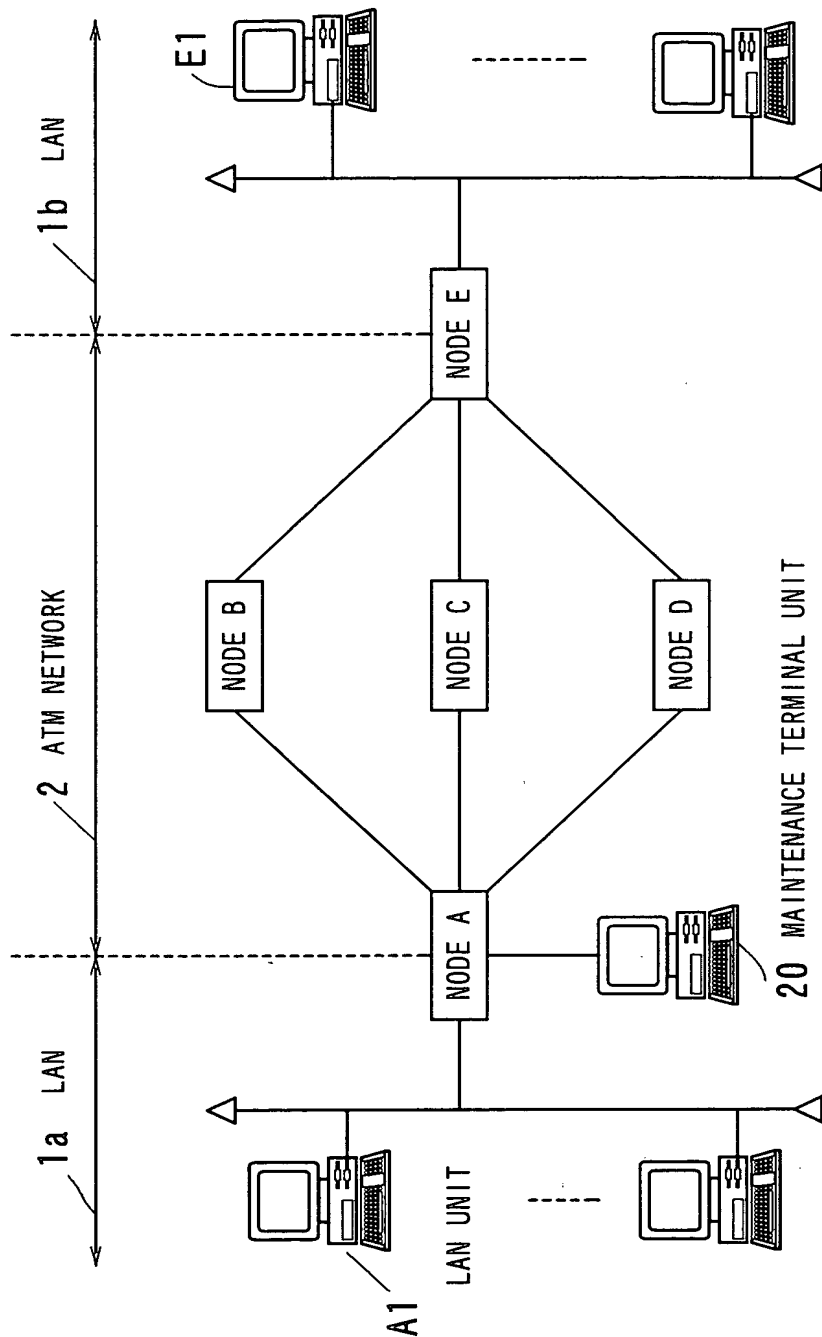20 MAINTENANCE TERMINAL UNIT

F I G. 3

FIG. 4

11a STATISCAL INFORMATION MANAGEMENT TABLE

TCP/IP CONNECTION IDENTIFIER	FIRST SAMPLING	SECOND SAMPLING	THIRD SAMPLING	FOURTH SAMPLING	FIFTH SAMPLING	AVERAGE TRAFFIC VOLUME
IDENTIFIER #1	19.2k	19.2k	19.2k	19.2k	19.2k	19.2k
IDENTIFIER #2	4.8M	4.8M	4.8M	4.8M	4.8M	4.8M
IDENTIFIER #3	240.0k	144.0k	5.76M	5.76M	96.0k	2.4M

(bps)

FIG. 5

15a   INFORMATION ELEMENT OF CALL CONNECTION REQUEST MESSAGE

INFORMATION ELEMENT	CONTENTS
ATM TRAFFIC DESCRIPTOR	PCR、SCR、MBS、ETC.
BROADBAND BEARER CAPABILITY	SERVICE CATEGORY, ETC.
DTL	ROUTING LIST, ETC.
CALLED PARTY NUMBER	TERMINATING ATM ADDRESS, ETC.
ETC.	-----

FIG. 6

13-1 QoS PARAMETERS

SERVICE CATEGORY	CBR	(CONSTANT BIT RATE)
	VBR	(VARIABLE BIT RATE)
BAND	PCR	(PEAK CELL RATE)
	SCR	(SUSTAINABLE CELL RATE)
	MBS	(MAXIMUM BURST SIZE)
DELAY	CTD	(CELL TRANSFER DELAY)
FLUCTUATION	CDV	(CELL DELAY VARIATION)

FIG. 7

TCP/IP CONNECTION IDENTIFIER	SERVICE CATEGORY	QoS PARAMETER SETTING INFORMATION				
		PCR	SCR	MBS	CTD	CDV
IDENTIFIER #1	CBR	50cps	/	/	≤20μs	ARBITRARY
IDENTIFIER #2	CBR	12500cps	/	/	≤20μs	ARBITRARY
IDENTIFIER #3	VBR	15000cps	6250cps	30000 CELLS	ARBITRARY	≤4μs

13a

13c

F I G. 8

NODE A

NODE B

NODE C

NODE D

NODE E

ROUTE i

ROUTE ii

ROUTE iii

ACR=1000cps
CTD=5 μS
CDV=2 μS

ACR=20000cps
CTD=10 μS
CDV=1 μS

ACR=2000cps
CTD=5 μS
CDV=2 μS

ACR=10000cps
CTD=5 μS
CDV=1 μS

ACR=30000cps
CTD=10 μS
CDV=2 μS

ACR=12000cps
CTD=10 μS
CDV=1 μS

ACR=12000cps
CTD=5 μS
CDV=2 μS

ACR=15000cps
CTD=15 μS
CDV=3 μS

ACR=20000cps
CTD=10 μS
CDV=1 μS

ACR=5000cps
CTD=10 μS
CDV=1 μS

ACR=30000cps
CTD=15 μS
CDV=2 μS

ACR=15000cps
CTD=10 μS
CDV=2 μS

ACR:AVAILABLE CELL RATE
CTD:CELL TRANSFER DELAY
CDV:CELL DELAY VARIATION

F I G. 9

ROUTE	ROUTING LIST	ACR	CTD	CDV
i	A→B→E	1000cps	10μs	4μs
ii	A→C→E	12000cps	20μs	2μs
iii	A→D→E	15000cps	30μs	5μs

12a DTL TABLE

12a-1   12a-2   12a-3

FIG. 10

15b INFORMATION ELEMENTS OF CALL CONNECTION REQUEST MESSAGE
(FIRST EMBODIMENT)

INFORMATION ELEMENT	CONTENTS
ATM TRAFFIC DESCRIPTOR	PCR=50 cps
BROADBAND BEARER CAPABILITY	SERVICE CATEGORY=CBR
DTL	ROUTING LIST=A → B → E
CALLED PARTY NUMBER	TERMINATING ATM ADDRESS=ATM ADDRESS OF NODE E

F I G. 1 1

15c CALL CONNECTION REQUEST PARAMETERS
(SECOND EMBODIMENT)

IMFORMATION ELEMENT	CONTENTS
ATM TRAFFIC DESCRIPTOR	PCR=50 cps, SCR=6250 cps, MBS=37500 CELLS
BROADBAND BEARER CAPABILITY	SERVICE CATEGORY=CBR
DTL	ROUTING LIST=A →C → E
CALLED PARTY NUMBER	TERMINATING ATM ADDRESS=ATM ADDRESS OF NODE E

FIG. 12

18a QoS INFORMATION

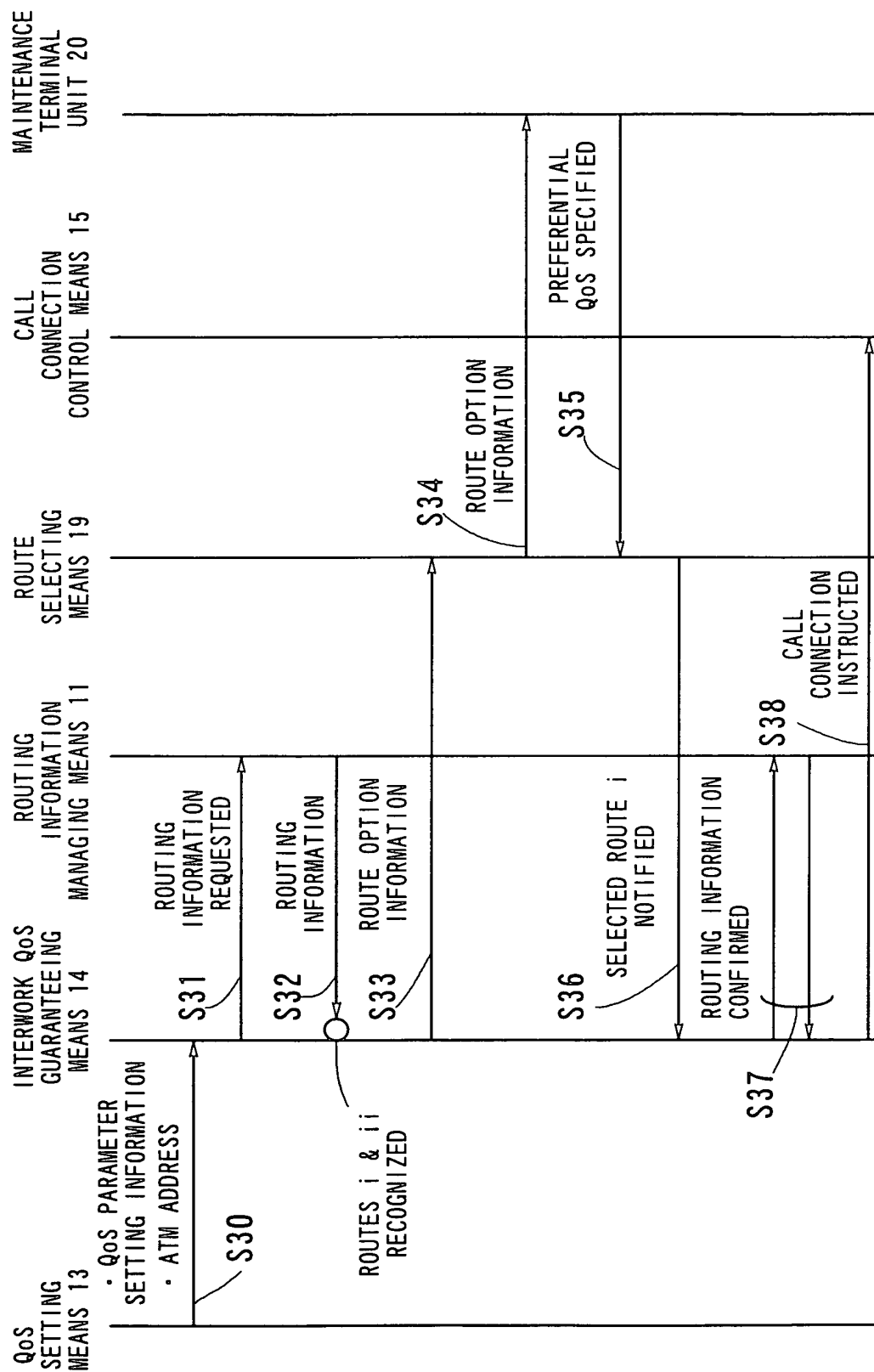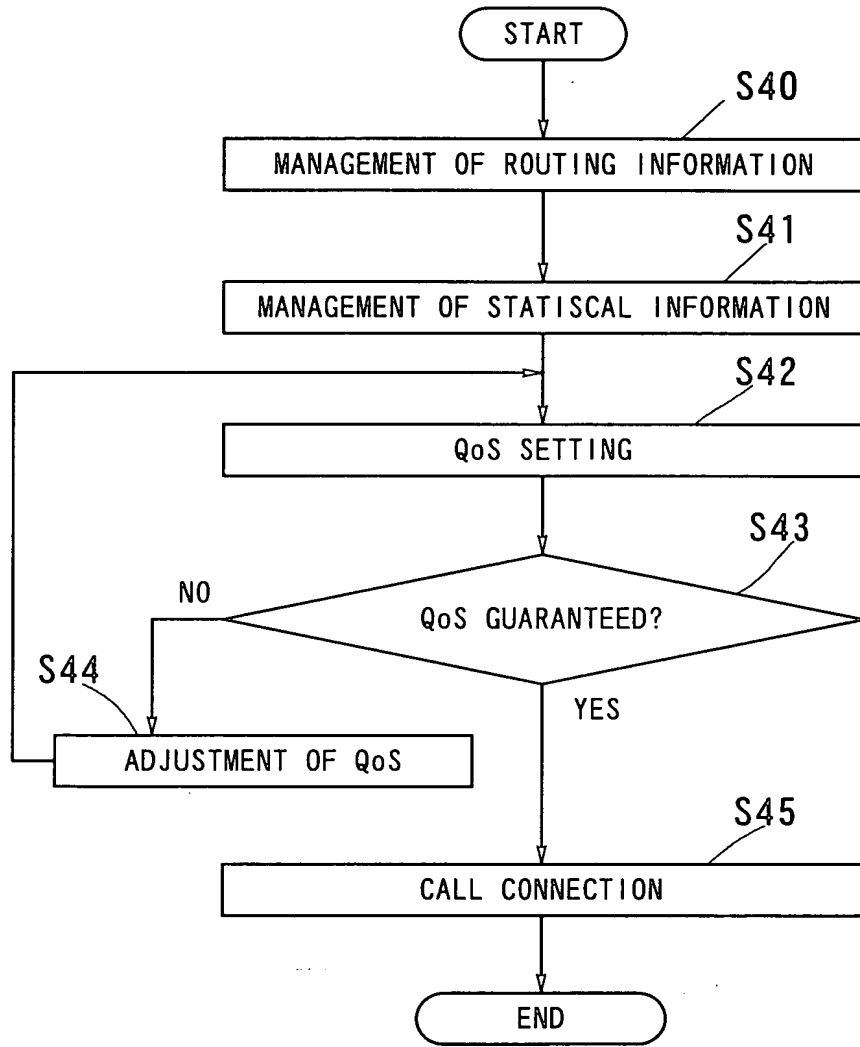| QoS REQUESTED FIRST BUT FAILED TO BE GUARANTEED	SERVICE CATEGORY=VBR PCR=15000 cps SCR=6250 cps MBS=30000 CELLS CTD=ARBITRARY CDV=4μs OR LESS
REASON FOR FAILURE TO GUARANTEE	BAND DEFICIENCY OF ROUTE i & BAND DEFICIENCY OF ROUTE ii & CDV OF ROUTE iii
OPTIMUM QoS AFTER ADJUSTMENT (GUARANTEED QoS)	SERVICE CATEGORY=VBR PCR=12000 cps SCR=6250 cps MBS=37500 CELLS CTD=ARBITRARY CDV=4μs OF LESS

FIG. 13

QoS SETTING MEANS 13	INTERWORK QoS GUARANTEEING MEANS 14	ROUTING INFORMATION MANAGING MEANS 11	ROUTE SELECTING MEANS 19	CALL CONNECTION CONTROL MEANS 15	MAINTENANCE TERMINAL UNIT 20

S30
· QoS PARAMETER SETTING INFORMATION
· ATM ADDRESS

ROUTES i & ii RECOGNIZED

S31 ROUTING INFORMATION REQUESTED

S32 ROUTING INFORMATION

S33 ROUTE OPTION INFORMATION

S34 ROUTE OPTION INFORMATION

S35 PREFERENTIAL QoS SPECIFIED

S36 SELECTED ROUTE i NOTIFIED

S37 ROUTING INFORMATION CONFIRMED

S38 CALL CONNECTION INSTRUCTED

F I G. 14

START

MANAGEMENT OF ROUTING INFORMATION   S40

MANAGEMENT OF STATISCAL INFORMATION   S41

QoS SETTING   S42

NO ← QoS GUARANTEED?   S43

S44 ADJUSTMENT OF QoS   YES

CALL CONNECTION   S45

END

FIG. 15